

Hewitt Video – Vectors and Projectiles

Name _____

1. What is a vector according to Hewitt?

Describe or draw the discussion about airplane vectors.

3. Draw the vectors that represent bowling ball velocity.

4. Explain the independence of horizontal and vertical motion.

5. What are the formulas for acceleration and velocity?

6. Explain the analogy of the sheet music.

7. Draw the vector diagram of a ball as it rolls off the table.

8. Which component of the velocity does not change?

9. How does Hewitt demonstrate the independence of horizontal and vertical motion in “slow motion?”

10. Which takes more time to hit the water, a dropped or thrown object? Explain.

11. A baseball pitcher throws a ball horizontally from a tower 5 m tall. The ball lands 25 m downrange. What is the speed of the ball thrown by the pitcher? Show all of your steps.

12. If the Earth were curved, would the ball be in the air?

13. Explain the concept of orbital motion using the idea of firing a cannonball.

14. How are an orbiting cannonball and the space shuttle similar?

15. Derive or find the speed needed for a cannonball to orbit the earth.

16. Why don't satellites fall to the earth?

17. Why are the satellites above the atmosphere?